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REMARKS

Claims 1-28 and 31 appear in this application for the Examiner's review and consideration, including amended claims 1, 3-4, 6, 10, 15, 20-22, 25, and 27 and new claim 31. Claim 12 has been withdrawn from consideration.

The recitation of implantation of atomic species from original claim 1 has now been moved to a new, dependent claim 31. Correspondingly, claim 10 has been amended to depend from claim 31 to maintain its antecedent basis. Claim 21 is written in independent form to include the recitations of the claims from which it depended.

The independent claims have also been amended to more particularly define the invention under 35 U.S.C. § 112, second paragraph, by reciting primary and secondary chamfers that are at angles to each other. These amendments are fully supported in the originally filed specification, claims, and drawings, for example, in Figs. 4-7 and the text that is descriptive thereof. Claim 14 has been canceled because its recitation now appears in claim 1, and claim 15 has been amended to depend from claim 1.

Claims 1 and 22 were objected to in the office action based on recitations of "the first and second faces". These claims have now been amended as suggested in the office action, and the objection is thus believed to be overcome.

Claims 3-4, 6-9, and 27 were rejected under 35 U.S.C. § 112, second paragraph, for lack of antecedent basis of several terms and language that was argued to be unclear in claim 3. In response thereto, claim 3 has been amended to properly recite a "first outline". Claim 4 has been amended to depend from claim 3 to provide antecedent basis for the peripheral region. Claim 6 has been amended to recite the "bonded first or second front face" of the corresponding first or second substrates. The recitation that the first or second front face is bonded is definite and would be clear to one of ordinary skill in the art since claim 1 recites that the first and second front faces are bonded to each other, consequently resulting a bonded first and second front faces. Additionally, claim 27 has been amended to depend from claim 26 to provide antecedent basis for "the region of weakness". Consequently, all of the rejections under § 112 hereby believed to be overcome.

Claims 1-3, 5-11, 13-17, 19-23, and 25-28 were rejected under 35 U.S.C. § 102(b) as anticipated by Nishida. Claim 1 recites a method for transferring one substrate to another that includes bonding first and second front faces of first and second substrates together. The

peripheral side of the second substrate that substantially borders the second front face thereof is oriented generally perpendicularly with respect thereto. During bonding, and for improving the bonding in a region at the periphery of the first and front face, (a) the second outline is larger than the first outline so that at least a portion of the first outline is disposed within the second outline, (b) the first substrate has a primary chamfer that extends around and at an angle to the first front face, and which is at least partially disposed within the second outline, and (c) the first substrate also has a secondary chamfer that extends between and at an angle to each of the front face and the primary chamfer. As explained in the application, this configuration, in which one substrate has primary and secondary chamfers, about a face that is bonded to a face of another substrate, has been found to reduce the area of the peripheral ring in which the bonding and transfer does not occur or incompletely occurs. The advantage of the significantly improved bond at the front face of the first substrate provided by the claimed invention is surprising in view of the prior art of record.

With respect to Nishida, this reference shows at most a single large chamfer. There is no disclosure or suggestion of employing primary and secondary chamfers that are at an angle to each other and to a front face to be bonded to a front face of another substrate. The benefits described are surprising in view of the disclosure of Nishida, and claim 1, as amended, is consequently neither taught or suggested thereby.

Independent claims 22 and 25 have also been amended to define the primary and secondary chamfers of the first substrate. Thus, these claims are patentably distinct from Nishida on their own merits for the reasons described with respect to claim 1.


Claim 21 recites that the second substrate is substantially free of any chamfer between the peripheral side and the front face thereof. The same is the case for claim 20 as amended. There is also no suggestion or teaching in Nishida of this feature used in combination with a chamfered substrate. Claims 20 and 21 are thus also patentably distinct from Nishida on their own merits.

Claim 4, 18, and 24 were rejected under 35 U.S.C. § 103(a) as obvious over Nishida with the argument that the difference in diameter of the second substrate compared to the first substrate is considered to involve merely routine optimization. Contrary to this assertion, the difference in diameter of 0.3 mm is not a matter of routine optimization, especially since Nishida does not provide any suggestion of the double chamfer on the first substrate. The

claimed difference in diameter of the substrates themselves, with one having a double chamfer that is at least partially within the front face of the other substrate, has been found to provide a significantly larger area of high quality bond between the front faces of the substrates. There is no suggestion in Nishida or any art of record of providing the difference in diameter, or of the surprising benefit thereof, as recited in claims 4,18, and 24.

In view of the foregoing, the entire application is now believed to be in condition for allowance, early notice of which would be appreciated. Should the Examiner not agree, a personal or telephonic interview is respectfully requested to discuss any remaining issues in an effort to expedite the allowance of this application.

Respectfully submitted,



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